




From Innovation ... to Commercialization

Special Highlight
"Extrusion: an untapped market in Saskatchewan"



Carmen Ly
Communications Director

Shannon Hood-Niefer
Senior Scientist and Manager: Extrusion

Overview of Food Centre



- Non profit organization
- Servicing the food industry for 12 years
- Full service assistance to the food industry
- A unique partnership arrangement
 - Saskatchewan Ministry of Agriculture; University of Saskatchewan and Saskatchewan Food Processors Association
 - Provide supporting services in food development, market and business development

MISSION
"To assist entrepreneurs in the development of value added agri-food opportunities"

Core Services



- Product Development
- Interim Processing
- Process Development
- Food Safety Training and Education
- Path-finding
- Extrusion Technology

Benefits to Entrepreneurs



- Proof of concept facility
- Cost effective way for market access
 - Low risk business start up – no need for equipment or facility investment
- Provide processing capability for test market and viability assessment
- Access to industry expertise on process, regulations, packaging, labelling, etc.
- Only commercial incubation centre in SK

Food Centre Clientele



- **Entrepreneurs**
 - Mom-and-pop operations
 - New to the food processing industry
 - Selling at the Farmer's Market or locally
 - Market entry or expansion
- **Medium sized businesses**
 - Existing business, own processing facility
 - Market expansion (retail chains, out of province)
- **Larger sized businesses**
 - Development expertise required

From the Idea to Final Product



Core Services



- Product Development
- Interim Processing
- Process Development
- Food Safety Training and Education
- Path-finding
- Extrusion Technology

Product Development

Core Service



- Establish recipe or fine-tuning
- New and improved food products
- Sensory evaluation, shelf life
- Nutritional labelling
- Scale up for processing
- Over 500 products developed and 50% introduced into market
- Confidentiality



Interim Processing

Core Service



- Federal facility (CFIA, HACCP, Organic, FDA)
- State of the art equipment
- Ingredient sourcing
- Daily rental fees
- Local and export markets



Federal Facility



Process Development

Core Service



- Develop a process for your product
 - Food Centre facility or your own facility
- Technology assessment
- Packaging



Food Safety Training/Education

Core Service



- Onsite, Online or workshops
- Needs assessments
- Assist with writing food safety systems
- Field food safety inquiries
- www.FoodIndustryTraining.ca
 - HACCP, GMPs, Sanitation

Food Industry Training (F.I.T.) Centre

Do you need to train your staff to engage and maintain your HACCP system? Check out our HACCP and Food Safety Education Program.

Do you want to train your staff in proper food safety practices? Check out our Food Safety Education Program. We offer a variety of food safety training courses and programs designed to assist companies with specific training needs.

The F.I.T. Centre has the expertise and resources to help your customers' training program take shape.

The F.I.T. Centre also offers a variety of seminars and workshops related to the food industry at large. To be added to our mailing list for future training announcements, please call 222-1222.

Food Safety Education Program	HACCP & Food Safety Education Program	Food Safety Education Program	Seminars & Workshops
<ul style="list-style-type: none"> • Onsite training • 5-day program of food safety education • 3-day program of food safety education • 2-day program of food safety education 	<ul style="list-style-type: none"> • Onsite training • 5-day program of HACCP and food safety education • 3-day program of HACCP and food safety education • 2-day program of HACCP and food safety education 	<ul style="list-style-type: none"> • 2-day program of food safety education • 1-day program of food safety education • 1-day program of food safety education 	<ul style="list-style-type: none"> • 21 modules for HACCP and food safety education • 15 modules for HACCP and food safety education • 15 modules for HACCP and food safety education

Contact the Food Centre: E-mail: training@foodcentre.ca

Path-finding

Core Service



- Industry portal with network of industry partners and resources to assist with your business
 - Suppliers (ingredients, packaging, equipment)
 - Researchers
 - Sector or industry specific
- Food Processors Guide (www.foodcentre.sk.ca)
- Funding programs available

Extrusion Technology

Core Service



- Extrusion mixes the ingredients together, cooks them and ultimately produces a uniform product in one process
- Snack foods, pasta, cereal, pet food, meat analogues



Extrusion Technology



Untapped Market in Saskatchewan!

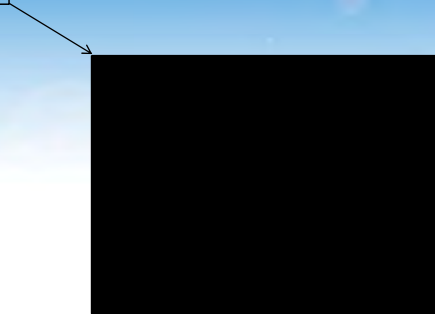
- New opportunities for processors and farmers - incorporating SK grains and pulses



Extrusion Technology



Ingredients



Extruded product



Extrusion Technology



- Shaping materials by forcing through a restrictive orifice (die)

Extrusion Technology



- Single screw
- Twin screw
- Unit operations
 - Pasta extrusion: mixing and forming
 - Cooking extrusion: mixing, cooking, forming

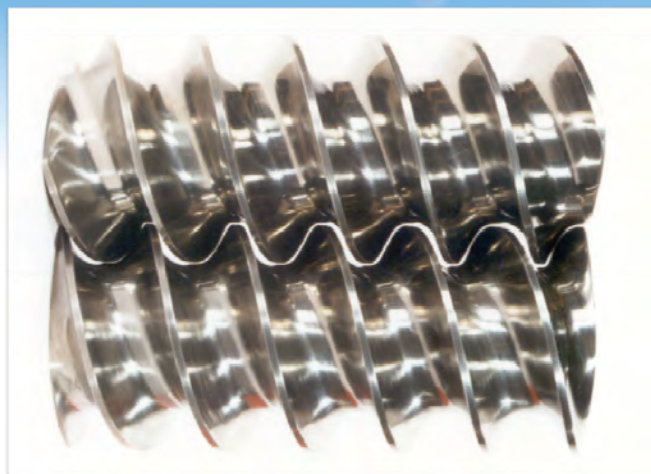
Extrusion Technology



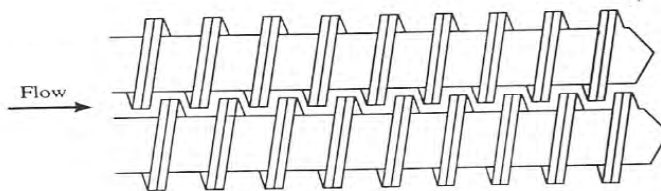
Extrusion Technology



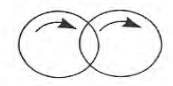
Co-rotating Twin Screw Extrusion



Co-rotating TSE



Screw rotation



Material path



Die shapes



A B C D E F G
H I J K L M N
O P Q R S T V
U W X Y Z

Twin-screw Extrusion



- Flexibility to utilize healthy ingredient in snack foods
- Versatility to produce a vast array of products



Food/Feed Extrusion Technology



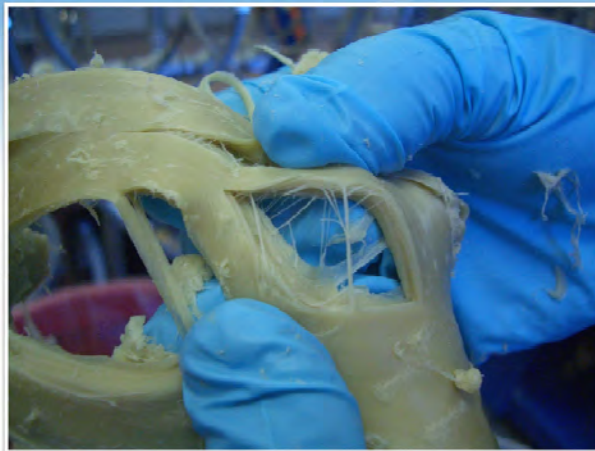
- | | |
|---|--|
| <ul style="list-style-type: none"> • Direct expansion • Indirect expansion • Texturized plant proteins • Breadcrumbs • Biscuits and flatbreads • Co-extrusion • HMEC • Pet food | <ul style="list-style-type: none"> • Aquaculture • Pasta and noodles • Beverage powders • Confectionary products • RTE cereals: flakes, buds, bran sticks, multi-grain • Chips • Reaction chamber |
|---|--|

Extrusion Technology



- HMEC, Co-extrusion, direct expansion, dense products
- Modular system
 - Dryer, fryer, tray dryer, coating tumbler, packaging
- Pasta line

High-Moisture Extrusion: Proteins





Future Opportunities

Extrusion possibilities are limited by your imagination

- Chips
- Crispy flat breads
- Breadcrumbs
- Modified starches
- Co-extruded snacks
- New protein analogues
- Crackers
- Healthy ingredients

The 'food centre' logo is located in the top right corner of the slide, featuring the word 'food' in a script font and 'centre' in a sans-serif font inside a dark oval.

Conclusion



- Our goal is to provide services that will give a competitive advantage to our food processors
- Our mission is to deliver the services professionally and cost effectively
- Our motivation is the companies' success as a result of Food Centre's services



Conclusion



- Many of the programs and services that you are about to hear today have contributed to the successes of the Food Centre and our clients.

In the Neighborhood?



Come tour the Food Centre!!

117 – 105 North Road

Saskatoon, SK

Tel: 306-933-7555

www.foodcentre.sk.ca

Email: info@foodcentre.sk.ca



Thank you!